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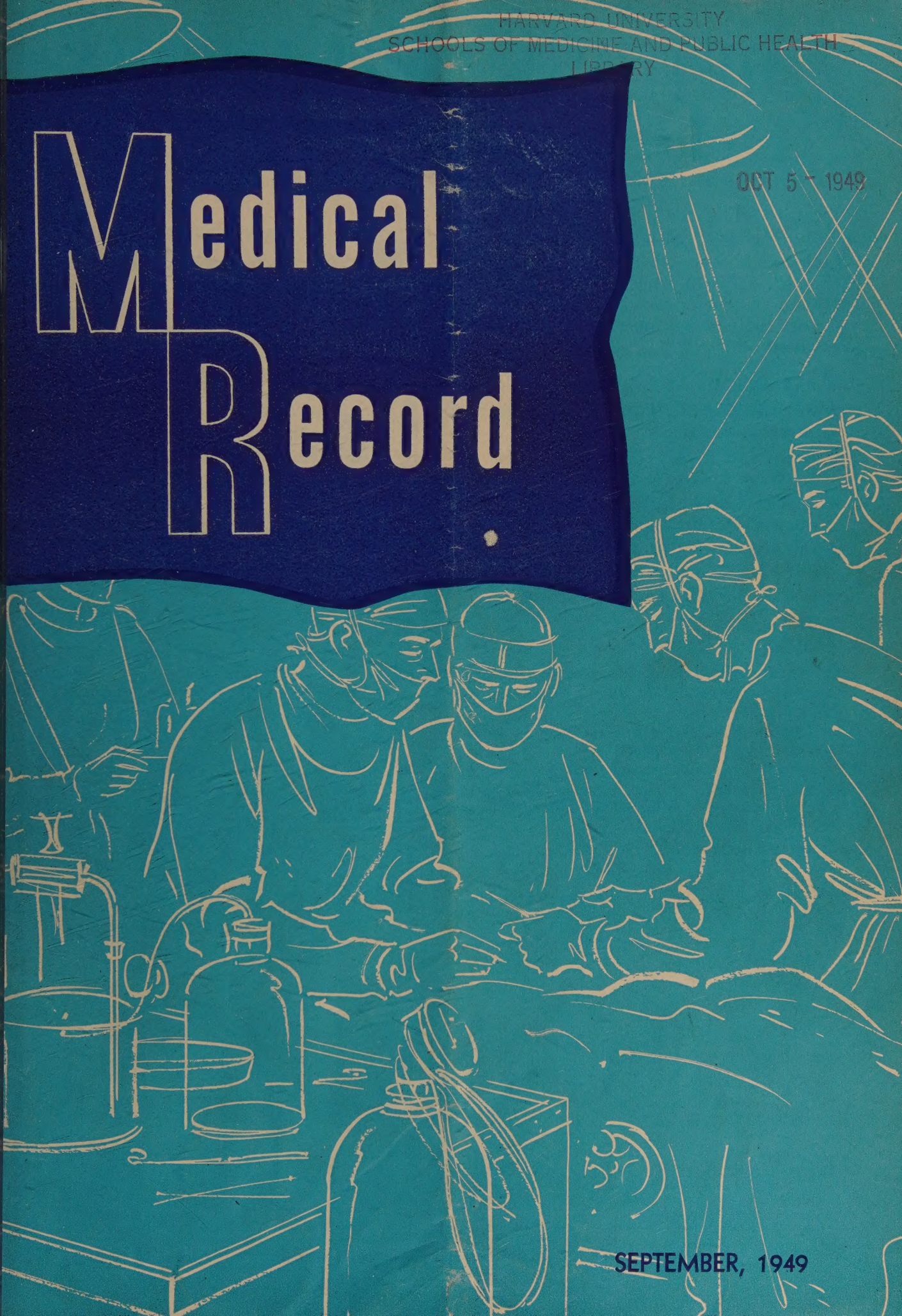

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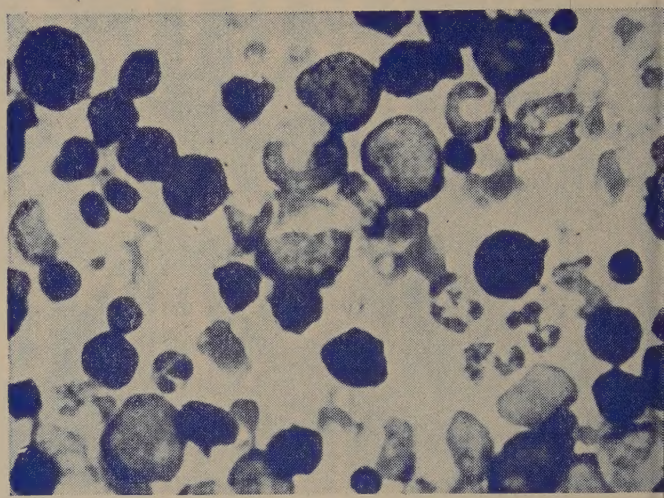

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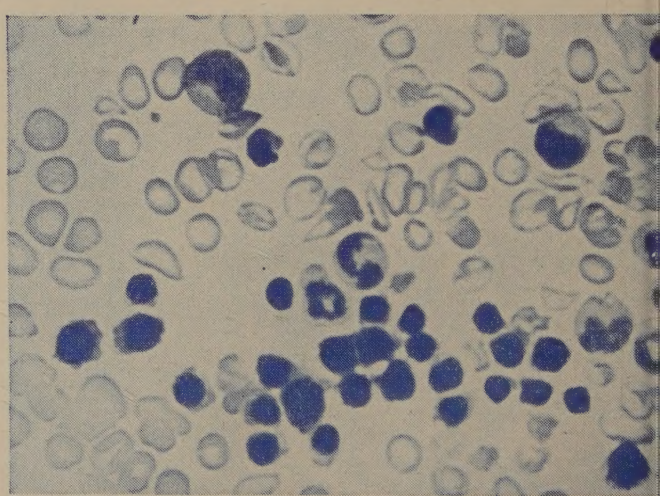

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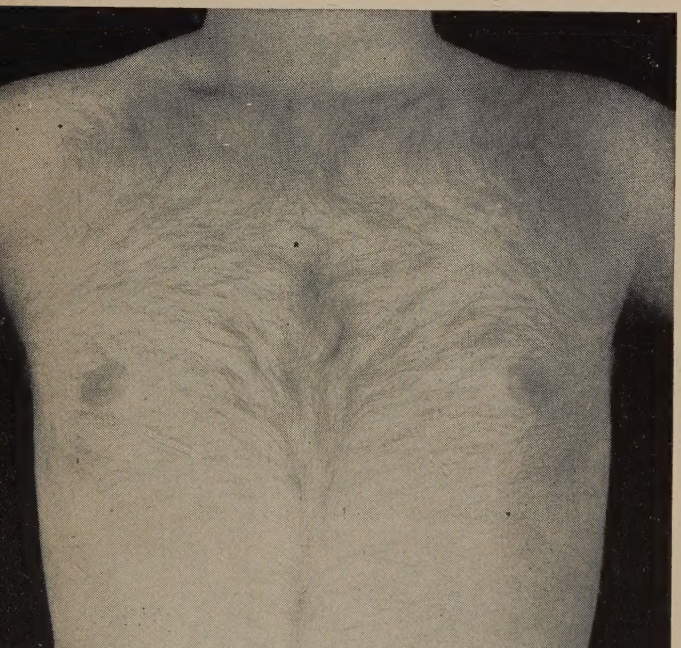

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VOL. 162, No. 9 SEPTEMBER, 1949 WHOLE NO. 2799

PSYCHOSOMATIC AILMENTS

Associated with Sexual Pathology

*LOUIS S. LONDON, M.D. and FRANK S. CAPRIO, M.D.**

Washington, D. C.

The final awakening of the medical profession to the importance of recognizing the effect which emotional conflicts have on one's health was inevitable. Psychosomatic medicine has already discovered that many symptomatic complaints encountered among patients in the general practice of medicine, as well as in the various specialties, can be traced to some underlying sexual pathology. Such patients experience a multiplicity of somatic ailments, such as headaches, fatigue, insomnia, precordial pain, colitis, trembling, perspiration, weakness, nervousness, muscular spasms of facial or eye muscles, and dysmenorrhea They usually display considerable anxiety in relating their complaints. The symptom when translated sometimes yields the etiology of the sexual neurosis. Vomiting, for instance, not due to organic causes, during early pregnancy, may symbolize a defense mechanism—an unwillingness to bear a child for the husband toward whom the wife bears ambivalence.

It is well, therefore, for the physician, in taking an anamnesis of his patient's symptoms to keep in mind the possibility of sexual conflicts as etiological factors in various illnesses of functional origin.

The following are a few excerpts from case-history material which should illustrate the association of sexual frustrations in relation to health.

I. SEX AND INSOMNIA

A young girl, age 22, complained of insomnia because of repeated dreams of "snakes." She would have nightmares and would scream in her sleep. As a result, she had to move many times at the request of the landlady who had been getting complaints from tenants who were disturbed by the patient's screaming. The patient resorted to barbiturates at bedtime to no avail.

In the course of one of her treatment-interviews, she spoke of having slept at the age of eight with her brother who was 16 at the time. She recalled how one night this brother put his arms around her and she was able to feel through his pajamas the penis pressing against her thigh. She felt very uneasy and sensed it was wrong. The next morning she told her mother that she no longer wished to sleep in the same bed with her brother. This experience was no doubt an etiological factor as a "traumatic episode" in the patient's psychosexual development. It was not until she began to go out on dates that she became conscious of a fear of being sexually accosted. She spoke of her boy friends as being all alike—"wolves."

When she learned that her dread of snakes in her dream was but a screen for her unconscious fear of sex, she began to sleep well. Her changed attitude toward the whole subject of sex alleviated the anxiety which in turn eliminated the insomnia and nightmares.

Another patient complained of insomnia as a result of which she was unable to continue at her job satisfactorily. Sedatives helped, but did not relieve her of her restless tossing.

From her life history, the author learned that her parents had secured a divorce when the patient was less than ten years of age. Her mother, who was a Christian Scientist, once refused to call in a physician when the patient suffered from a severe case of scabies during childhood. She expressed a fondness for her father and disclosed evidence to the effect that her relationship toward her mother was an ambivalent one. Before reach-

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* *Co-authors of a forthcoming book entitled "Sexual Deviations" to be published by The Linacre Press, Inc.*

ing puberty her brother had coerced her into physical intimacies (coitus attempted unsuccessfully).

She was regarded as "tom-boyish" and experienced strong attachments for various girl friends during her early school years. At college she made the acquaintance of a rather masculine girl, seven years her senior, with whom she became sexually intimate. They resorted to mutual masturbation, preceded by kissing and caressing. She denies cunnilingus, active or passive. It was during this sexualized friendship that she developed the onset of her insomnia, for which she sought help.

Following treatment by two different psychoanalysts on the West Coast, she decided to marry and give up her homosexual activities. Unfortunately, shortly after her marriage, she resumed her sexual activities with her girl friend. She attempted to lead a bi-sexual existence, dividing her sex life between her husband and her friend. This proved tragic, for the husband suspected and accused her of carrying on a homosexual affair and finally divorced her. The insomnia increased. She decided to break with this girl and move to a different city, where during the early part of her stay she abstained from any relationship with either sex. When the insomnia became intolerable, she sought relief via psychotherapy.

The psychodynamic factors responsible for the sleeplessness in this case were rather interesting. Her bi-sexuality was construed as the product of parental incompatability resulting in the development during childhood of a basic insecurity. Her attempt to fulfill her sexual obligations as a wife and at the same time accepting the love of another woman indicated her desire via psychic fantasy, to bring her parents together. As if to say, "I want to love my husband (a father surrogate) and also want my woman friend to love me" (overcompensation for childhood feelings of rejection by the mother, the girl friend serving in the capacity of a mother symbol).

There is some suggestion of an Electra complex, because of her confessed attachment to her father, which became converted into the semblance of a brother fixation. She once stated she wished she could have been born a boy and could have grown up to be like her brother, whom she admired a great deal.

Interestingly enough, in the course of her analysis, she developed two significant symptoms in addition to her insomnia: A frequency of urination and a marked itching of her skin. The latter resulted in a dermatitis which appeared to be of psychogenic origin. She claims she could not resist scratching herself until her skin bled and became severely irritated. Both of these symptoms represented the unconscious equivalents of her repressed desire to masturbate. She claimed that she fought against temptations to masturbate. The scratching may also represent an unconscious expression of hostility (self-inflicted punishment, a masochistic attempt to atone for her homosexual guilt.) In addition, it can be associated in fantasy with the time she suffered from scabies during childhood, when her mother, toward whom she nursed love-hate feelings, preferred to see her scratch and suffer rather than summon the services of a physician because of her religious beliefs.

What actually was responsible for her insomnia? The evidence in this case definitely pointed to the conscious as well as unconscious sexual guilt associated with her bi-sexuality. She expressed a fear of going to bed and falling asleep, convinced that she would indulge in homosexual fantasies. A good many of her dreams were homosexual in nature. It was this deep-seated bi-sexual conflict—the struggle between her id or homosexual cravings and her super-ego or moral censorship that awakened her. The insomnia served as a defense mechanism against reminiscing during sleep of previous homosexual pleasures.

The working out of her bi-sexual neurosis during the analysis relieved her of her tormented conscience. Her anxiety, the cause of which had been unconscious, was brought to the level of conscious understanding. The guilt was dissipated during her free association sessions. The insomnia disappeared and the author learned she was making a normal adjustment to the opposite sex, having been able to experience a coital orgasm for the first time. She secured a position overseas and in answer to a follow-up letter, informed us that she was extremely happy, symptom-free, and planning to re-marry.

II. Sex and Eye Disturbances

We find many individuals whose visual disturbances are associated with, or result in the development of "complexes. Through vision, the eye is capable of stimulating the sexual impulse and often becomes the seat of sexual eroticism in various sexual deviations. In voyeurism, the patient may complain of spots before his eyes. There are those who are obsessed with the misconception that masturbation can cause various eye disorders. Exhibitionists are sexually gratified in merely having a member of the opposite sex "see" their exposed penis. The author has had a patient who was an exhibitionist and who changed his glasses six times within a period of a year. Each time he complained of blurred vision.

Another patient, aged 47, wearing bi-focal glasses, came into the office complaining of feeling "jittery and nervous." During the interview, he had a tendency to close his eyes so that he could barely see out of them. His chief complaint was as follows:

"My eyes bother me. I can't read continuously. When I read it affects my throat and larynx. The muscles of my eyes tighten up. I can't do my work with my eyes like they are. There must be something wrong with the nerves of my eyes."

The anamnesis of this patient disclosed psychic impotence of three years duration—a reaction to his wife's frigidity. His wife was a very aggressive woman who displayed masculine-protest tendencies. When the sexual incompatability was corrected the eye symptoms disappeared.

III. Sex and Enuresis

The patient is 31 years of age, single, employed in his father's place of business. He complained of an inability to control bladder function, resulting in embarrassment. On many occasions he would

wet his trousers while talking to someone, hence he found it necessary to wear a rubber urinal bag strapped to his leg seven days a week. A genito-urinary check-up revealed an absence of any organic pathology.

The patient's father was extremely neurotic. He once attempted to commit suicide, by shooting himself. The mother died when the patient was an adolescent. He had been much attached to his mother and became very depressed following her death. Although he was shy as a child, he became more so in later years. The father remarried and the patient found that he did not like his stepmother too well. He worked in a laundry, but lost his job for reasons he could not ascertain. It was shortly afterwards that he developed a psychosis diagnosed as schizophrenia and was institutionalized. Other significant data included the death of his stepmother, masturbation to excess, associated with feelings of guilt, the death of his brother in service, the patronage of brothels and employment difficulties following his discharge from the hospital.

In reviewing the case, we noted a number of psychogenic factors responsible for the development of the patient's enuresis. There was an over-attachment to the mother and feelings of repressed hostility toward the father. The incontinence represented an unconscious regression to infancy—what the French would call a "retour a l'enfance." There was also the element of urethral eroticism motivating the symptom (a masturbation equivalent). Through enuresis also he expressed his hostility directed toward the father (urethral sadism). Fear and anxiety were two emotions that became involved. Incidentally, his father also suffered from an "irritable bladder." The patient's awareness of this symptom in his father served to establish a father-son identification, a mechanism that is often misconstrued as hereditary.

The case was presented to show that the enuresis was a symptom-manifestation of chronic anxiety aggravated by intra-psychic conflicts. It constituted, as previously mentioned, a form of urethral eroticism (a masturbation equivalent)—a regression to psychosexual infantilism, common to psychotic patients.

IV. Sex and Gastro-Intestinal Disorders

The patient is an adult woman aged 34, married, with a neuropathic family background. She has been treated by many physicians for nausea, loss of appetite (anorexia nervosa) and colitis.

The family consisted of a highly neurotic mother, and a father who was sadistic, high-strung and a philanderer. The patient was regarded as being the least attractive member of the family. As a child she had to do most of the menial work including looking after her baby brother. In the course of her sessions, we learned that she had been unable to achieve an orgasm during coitus with her husband. This orgasm-incapacity existed throughout her married life, causing her considerable distress.

At the age of thirteen, she experienced the psychic trauma of being raped by an elderly man. She began to hate men in general, as well as herself, for having forfeited her virginity. This secret of having been premaritally seduced, she bore up to the time of her coming for treatment. The feeling that she had deceived her husband inspired the belief in her that the frigidity was her just punishment for her sin.

The patient's marital happiness had been short-circuited by the psychic trauma which she had suffered in adolescence. She had projected her anti-male feelings that came as an aftermath of her experience onto her husband and her strong sense of guilt prevented her from assuming a normal attitude toward coitus. The frigidity was due to an early traumatization of her sexual libido which became converted into anxiety symptoms associated with disturbances of the gastro-intestinal tract. The mental catharsis released the guilt feelings. Insight therapy enabled her to appreciate the relationship of her "sexual accident" at the age of thirteen to the development of her marital psychic frigidity. Gratifying results were achieved after several months of analytical psychotherapy.

Women who suffer from frigidity are bound to manifest neurotic symptoms. Their neurosis is often disguised in symptoms simulating those of organic origin. Cases of frigidity respond to psychoanalysis, but like all other branches of medicine the cure is dependent upon a number of factors—the cooperation of the patient, the cooperation of the husband, particularly if faulty technique is a factor, and the ability of the patient to put into practice the insight she has gained through psycho-therapy.

V. Sex and Dysmenorrhea (In the Wife) Sex and Fatigue (In the Husband)

The following case involved marital incompatibility between a wife who suffered from painful menstrual periods and a husband who constantly complained of "feeling tired." These symptoms manifested themselves shortly after they married when they became aware of their sexual disharmony. Analysis revealed the existence of psychogenic factors that were associated with the onset of these somatic complaints.

At the time the husband was courting his wife, she had been going with a rival suitor. She claimed she loved this other person and considered him the more eligible candidate for marriage. The husband, however, succeeded in persuading his wife to make the decision in his favor. On the honeymoon night she began to cry and began thinking of the other person (ghost love; psychic infidelity). She humiliated her husband, and went so far as to confess that she had been intimate with her former lover, and that his technique of lovemaking was superior. The husband, of course, upon learning of this prior to an attempt at coitus, became impotent. Things went from bad to worse. They quarreled over trifles until it lead to a threatened separation.

The wife belonged to the "masculine protest' type as described by Alfred Adler. She was aggressive and extremely career-minded up to the time of marriage. She psychologically "castrated" her husband, by sadistically confessing her premarital intimacies prior to a honeymoon coitus. The husband, on the other hand, was weak, passive and infantile. He was more masochistic than sadistic. He idealized women, and was greatly in-

hibited and inexperienced. However, there was a sadistic component at work in his impotence, for he unconsciously gained revenge satisfaction by leaving his wife out on a limb, so to speak. His penis was insulted and it behaved accordingly. When he began to regain his potency, she developed "vaginismus" which served as an outlet for her sense of guilt arising from her psychic infidelity. There was also one other potential explanation, namely, she wished to restore her virginity psychologically by bringing about the difficulty of penetration found in virgins. This clue was gathered from a statement she made relative to her chastity pre-maritally.

Analysis of both husband and wife revealed the psychogenesis of their sexual neuroses. Their relationship has improved to a point where they have decided to remain together. Their marriage had been definitely a competitive one emotionally and sexually. The dysmenorrhea diminished until it disappeared completely and the husband restored his potency and no longer complained of chronic states of fatigue.

VI. Sex and Cardiac Symptoms

This case involves a cardiac neurosis in a man, age 45. He had his first heart attack following the death of a sister and on the birthday of his son, seven years old. For several years he had fears of contracting angina pectoris and once thought he had carcinoma of the esophagus.

He had difficulty in adjusting to his marriage, and practiced sexual deviations (coitus in anum) because normal heterosexual relations gave him no gratification. The analysis revealed an Oedipus Complex with an incestuous fixation on the sister who died. He also had a latent homosexual neurosis which was due to a failure to sublimate his homosexual component during adolescence. He masturbated by inserting his finger into his rectum (masked homosexuality). The libido in this case could not attach itself to a heterosexual object as it was primarily fixated to his mother, and later by secondary identification to his dead sister. His libido was at a very low level, anal sadistic, and had to be elevated to a heterosexual level. At the time of his marriage he practiced a masked form of homosexuality (anal coitus) which could not gratify his libido. He had to sublimate the extra libido and did this by nursing his heart as a masturbatory symptom.

The next case concerns a twenty-four year old girl who suffered from cardiac arrhythmia and anxiety, and fears of sudden death by stoppage of the heart.

Her cardiac attacks began soon after her mother's death. She fears a fatal heart attack, suffers from dyspnea and finds it difficult to swallow. Concomitant with the occurrence of these symptoms she becomes panic-stricken. She believes her end has come. This phase lasts from several minutes to several hours and gradually disappears.

She is very emotional and cries easily. At times she is subject to states of silly laughter. She has always been more irritable during her menstrual periods. Frequently she has thoughts of suicide, especially during her states of depression.

During the past four years since the time she had become intimate with her employer, her cardiac symptoms have increased in intensity and frequency.

When she is away from her lover she is more susceptible to attacks. She craves him constantly. When he leaves her she becomes agitated and nervous. Tachycardia and arrhythmia occur and an attack begins. She often gets the compulsion to swallow and cannot. She runs for water (fellatio fantasy).

She has a marked phobia of bathing, fears drowning during one of her attacks. This fear is so pronounced that she never goes swimming. This phobia was inculcated by her mother, who always instilled fear in her. Her mother also had a phobia of water and feared fainting in the bathtub.

The patient has other phobias, a fear of contracting tuberculosis, and a death phobia. Whenever she gets mucus in her throat or a nosebleed, she fears the onset of tuberculosis. When in the dark she fears that some insane man will attack her.

The patient was born in Europe and emigrated to this country at the age of sixteen. She has no recollection of her father, who died when she was three years old. Two years later her mother remarried. This marriage was very unhappy. Her parents quarreled constantly. Her stepfather accused her mother of infidelity, and watched her constantly. He was very suspicious and wanted explanations as to why she pulled down the shades.

They quarreled about their sexual life and compromised by the wife allowing her husband two nights of sexual indulgence a week. The patient believes that her mother had a greater libidinous instinct which required more satisfaction.

The patient was very much attached to her mother, but she also questioned her fidelity and remembers that when she was thirteen years old, her mother carried on an affair with a man. She often hated her mother for leaving her bed during the night to go into the room of a man who was a boarder at their house. The affair lasted about two years and the man eventually jilted her mother. This depressed her mother, and the patient never forgave her for this transgression. Her mother frequently defended her morals to the patient by citing the immorality of her own mother (patient's grandmother).

Although her mother returned her affections she always thought she was an unwanted child. She heard her mother say that she was in her way and often expressed regret that the patient was born.

The patient wet the bed until she was eight. At this time she was often intimidated when put to bed. All fluids were restricted and her mother told her that she would grow up "skinny."

Her mother questioned her about homosexuality, and told her of an instance in her life when another woman wanted her to enter into a homosexual affair.

There is no doubt that the mother was neuropathic. She suffered from visual hallucinations. She died suddenly of heart disease. The daughter identified herself with her mother's cardiac trouble.

The patient's autoerotic life began early at the age of three. She practiced masturbation through-

out her life. It consisted of a manipulation of her clitoris. Her mother often warned her of the habit.

Early in life she experienced a homosexual trauma. She played with another little girl. They attempted to approximate their genitals (tribadism). This experience occurred in the fourth year of her life and continued for a short time. She continued her autoerotic life, masturbating irregularly. On one occasion she developed edema of the vulva and in washing it obtained an orgasm.

During the past four years she has been intimate with her employer. At the beginning of their sexual relations he was sexually inadequate and suffered from ejaculatio praecox. Later, he improved but his potency has always been unsatisfactory. Many of their sexual activities were masked forms of homosexuality. They masturbated each other. The patient is entirely frigid during coitus and claims she has never obtained a coital orgasm in her life. Occasionally they indulged in sexual deviations. Her employer resorted to cunnilingus.

Her sexual relationship to this man betrays her strong homosexual component. She frequently plays with his penis and says she is interested in the mechanism of erection (penis envy).

As a child she always wanted to be a boy. This was not due to any sexual thoughts, but she wanted to be in their company.

At the age of seventeen, she met a man who offered to marry her but she refused.

Later she met another man and whenever they went anywhere, they would each pay their own way (money is symbolic of love; they did not want to give love to each other). They kissed occasionally and she derived great pleasure in his company but there probably was no psychosexual attraction.

When she was twenty she met a man, who was married, and this culminated in a scandal, as his wife was very jealous.

At one of her places of employment, her employer made an attempt to attack her. He showed her his genitals. The large size of his penis remained imprinted in her mind.

On another occasion she met a chiropractor who during the examination masturbated her.

At the age of four when sleeping with her aunt, the aunt gave the patient her breast and asked her to suck her nipples. The patient recalled the nauseating feeling accompanying it. Later in life she remembers that a male companion kissed her breasts. She identified the nauseating taste of her childhood experience.

When this maternal aunt visited her lately they slept together. She could not sleep and was very nervous. She thought her nervousness was due to a prolonged conversation they had before retiring.

She has a marked phobia of childbirth. This fear was implanted in her mind by her mother and it frightened her. She recently explained this fear to a girl who works in the same office with her. On one occasion she saw the breasts of this girl and she describes getting a queer feeling.

During her analysis she related many dreams. The following three are offered to show the mechanism of her bi-sexuality.

Dream 1: She dreams she is a boy and is going to get married.

Dream 2: She has a penis and it is very long. She is with a woman who says, "You must have been cut." There is a transition and a little boy is to have his phallus cut. The patient awakens with an orgasm.

Dream 3: She is on a trip with a girl who wants to leave her. She decides the only thing to do is to marry the girl. She then says to herself, "I am marrying her so she cannot leave me, but she will not have intercourse with me."

The three dreams show her bi-sexual conflict. The latent homosexuality, which is associated with her cardiac neurosis, is evolved around her lover who has taken the place of her mother image. This is the reason she craves his constant companionship. Her experience with her aunt at the age of four explains her difficulty in deglutition. It is identified with her being weaned in her infantile life.

The patient had a short analysis, only thirty-five sessions. At the end of this time the patient's symptoms were diminished and for long periods entirely eliminated. She planned to resume her analysis on a fractional basis in the future should she have a recurrence of her symptoms. However she reports that she has not had any attacks of cardiac distress or difficulty in deglutition since her analysis.

Epilogue

The authors attempted to demonstrate that sexual conflicts are capable of disturbing physiological functioning. The cases were presented in an abbreviated form merely to show the correlation between "libido" and "soma" and to convince the reader that sexual disorders may be responsible for a multiplicity of psychosomatic complaints.

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PERSONAL EXPERIENCE WITH CANCER OF THE BREAST

A Report of 50 Consecutive Cases

MELVYN BERLIND, M.D., C.M., F.I.C.S.
Miami Beach, Florida

A report of 50 cases of cancer of the breast hardly seems justified in the face of 7000 such lesions seen at the Mayo Clinic from 1933 to 1945 (1). And it must seem even less worthy to the reader when he learns that these 50 cases have been collected over a period of some twenty years—1928 to 1948. However, there are a few redeeming features which appear to lend some justification for the publication of this relatively small series. Foremost amongst these is that each case was handled by the author personally. His judgment alone is responsible for the prognosis of a half-dozen patients of about 15 to 20 years ago.

By the same token, there has been a marked improvement in prognostic hope of patients seen during the last 10 to 15 years. This has been brought about by virtue of a more extensive and detailed radical operative procedure now being performed, coupled with a prolonged course of postoperative roentgen therapy. The present writer was far from alone, two decades ago, in doing less radical mastectomies for carcinoma of the breast. A simple mastectomy was quite the vogue in certain clinics a quarter of a century ago, and recently has again received apparent confirmation from a paper published by McWhirter (2). However, larger series of cases, with more careful follow-ups over a longer period of time, have definitely proved the superiority of the modern thoroughly extensive radical mastectomy over the so-called simple type (even with added massive roentgen therapy, pre or/and postoperatively.)

DIAGNOSIS OF CANCER OF THE BREAST

Cancer is the Number One Killer of women between the ages of 30 and 60 years of age, and of these deaths, cancer of the breast is the major culprit. About four per cent of all adult women contract the disease. In the United States alone, of 185,000 people who die annually from cancer, 15,000 women succumb from cancer of the breast. Breast cancer is almost twice as frequent as cancer of the cervix, and it is actually increasing at the rate of one per cent per annum (3). This increase is only in part explained by the greater number of women living these days between the ages of 50 and 75 years.

The enormity of the problem of breast cancer is thus readily appreciated. It offers a tremendous challenge to the medical profession, and particularly to the general practitioner or family doctor who is the first one to examine by far the larger percentage of these cases.

The sine qua non of curability of breast cancer is early diagnosis. Dollars in the millions are being spent yearly in educating the public in the early signs and symptoms of cancer of the various organs of the body. And the patients are learning rapidly, but not so the profession in general. For years it has been the custom to place the opprobium on the patient for delay in treatment. However, in a recent study of 500 cases entering the cancer clinic at the Memorial Hospital, New York City, it was found that the patient was to blame for delay in seeking medical advice in 32 per cent of the cases as compared to 44 per cent in a similar study of 10 years ago. The physician, on the other hand, who first saw the patient, gave either the wrong advice or incorrect treatment in 17 per cent of the cases 10 years ago as compared to 27 per cent today! In all fairness to the medical profession, this apparent worsening of medical opinion and advice is based to some extent on the extremely early lesions that are being picked up today in the modern and well-equipped cancer clinic and cancer hospital. Some of these very early tumors are almost equivocal—they are too minute and indefinite for a final opinion, at least in the doctor's office, regarding malignancy. Be that as it may, one observes too many cases in which the original physician seeing the patient passed her breast condition off with "come for a recheck next month," or "it's probably a small cyst, let's see what develops."

There is little need here to enter into a detailed discussion of the diagnosis and differential diagnosis of cancer of the breast. The writer can do no better than to refer the reader to a series of Special Articles by Haagensen appearing recently in the *Journal of the American Medical Association* (4). A thorough and excellent discussion of the method of breast examination for the diagnosis of malignancy is given in the above papers. It should only be necessary here to emphasize a few important points. Most vital of all is the following: (1) every discrete mass in the breast should be removed for microscopic examination; (2) bleeding from the nipple is to be considered as of malignant origin until proved otherwise—of 108 cases of bleeding from the nipple, Adair (5) found almost 50 per cent (47.2 per cent) were due to duct carcinoma: and (3) under no circumstances wait for, or expect to find, retraction of the nipple, marked dimpling of the skin (peau d'orange), fixation of the tumor to the deep fascia, and, least of all, pain, before you commit yourself to a diagnosis of malignancy. If you do, you will be responsible for allowing the ideal time for radical mastectomy and curability to pass,

and consequently this delay will be tantamonut to signing, prematurely, the patient's death certificate. Today's patient, with a lump in her breast, expects it to be biopsied—let our profession not be the delaying factor.

Regarding aspiration or needle biopsy, it is best to be avoided unless the physician is an experienced histo-pathologist. And even under these circumstances, it is in no way comparable in successful diagnosis to the regular tissue biopsy. The diagnosis in needle biopsy must of necessity be made on the examination of a few cells—the cellular arrangement and the general architecture of the tumor is lost. Again, the needle may bring back only a few cells from an adjacent or overlying cyst and miss the cancer completely. This is more likely to happen if the cancer is of very small size —less than one centimeter in diameter. It is for these pertinent reasons that the writer only rarely uses aspiration biopsy, and has discounted it as a routine diagnostic procedure.

Treatment of Cancer of the Breast

The ideal treatment for an operable breast cancer is the modern extensive radical mastectomy, followed by postoperative radiation. There have been many modifications of the radical mastectomy as originally described by Halstead and Willy Meyer. However, they all emphasize several cardinal principles: (1) excision of a large area of the skin over the breast, using a Thiersch graft when necessary to cover the defect; (2) excision of both pectoral muscles; (3) complete axillary dissection of glands and fat, and (4) removal of excised tissues in one block. The operation is tedious and detailed, and should require three to five hours for its completion.

As to cases that do not lend themselves to radical mastectomy, Haagensen and Stout (6) have placed the following in their Categorically Inoperable Groups: (1) carcinoma developing during pregnancy or lactation; (2) extensive edema of the skin over the breast; (3) satellite nodules in the skin over the breast; (4) presence of intercostal or parasternal tumor nodules; (5) edema of the arm; (6) supraclavicular metastases; (7) inflammatory type of carcinoma; (8) distant metastases. There was not a single five-year cure when radical mastectomy was done in any of the above groups. Again, and practically confirmatory, in a very recent paper (1) reporting 74 inflammatory breast carcinomas, radical mastectomy in 61 of them resulted in only three patients surviving over five years. In general, these patients should be treated by extensive roentgen therapy, with simple mastectomy where indicated for fungating lesions or for cosmetic purposes (ugly foul-smelling masses). In addition, androgen therapy might here be employed with advantage: 50 mg. of testosterone propionate in oil three times a week.

Simple mastectomy should never come into consideration in the handling of operable cancer of the breast. Unfortunately, it is still being done by hurried, and more particularly, timid surgeons, who fear or cannot perform the more technically difficult radical operation. Varied excuses are given for doing the simple over the more extensive radical mastectomy, except the real excuse, to wit, the surgeon's

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inability or inexperience in performing the modern radical operation. Nowhere can statistics be found which give equally good results for the simple operation as for the radical mastectomy in operable breast cancer. Let the patient, the referring doctor and the surgeon keep this constantly in mind.

General Discussion

Since 20 years elapsed between the first and the fiftieth case of breast cancer collected personally by the author, he must obviously be considered 'an occasional operator' so far as cancer of the breast is concerned. However, 75 per cent of these cases, or 37 out of the 50 patients, have been operated upon during the last seven years, and these, consequently, might be thought of as of relatively recent origin.

Several important impressions stand out clearly in critically reviewing these 50 breast cancers (as well as the published reports of thousands of other cases). Primarily, the author is convinced that a proper biopsy of a breast tumor cannot be performed under local anesthesia in the office by a general practitioner—or for that matter, by many a surgeon. The local anesthesia interferes with the anatomical relationships between tumor and breast tissue. The desire not to hurt the waking patient often necessitates further injection of procaine, which in turn obliterates the surgical field with the apparent 'disappearance' of the tumor mass—particularly if it is of small size. In three instances, a piece of tissue snipped out under these circumstances returned from the pathologist with the diagnosis of "chronic mastitis" in two, and "normal breast tissue" in one—only to be rechecked within a few months and found to be cancerous. It is most unlikely that cancer had developed in all three cases—or in any one of them—since the original "negative" biopsy. The author was responsible for one of these biopsies—taken 12 years ago

The writer's procedure at present is as follows: the patient is admitted to the hospital and signed consent for a radical mastectomy, should it be found necessary, is obtained. The surgical pathologist is present at the time of operation and examines the patient. All preparations are made in the operating room for a radical mastectomy. Under sodium pentothal intravenous anesthesia, a small incision is made and a wedge of tumor tissue approximately 0.5 cm. in diameter, is removed. A frozen section is made at once and examined by the pathologist. Given an unequivocal diagnosis of carcinoma by the pathologist, the procedure of radical mastectomy is begun. (The biopsy incision is first sterilized with formaldehyde or alcohol and closed with a running stitch of black silk). Should the diagnosis based on the frozen section be in doubt, the incision is closed and the operation is delayed for paraffin section studies. No harm results from this day or two delay. A mastectomy is never done unless on definitive diagnosis of malignancy. Should the report prove the lesion to be benign, nothing but the tumor, naturally, is removed. This too is sent to the laboratory for confirmation—which further study, in the rare instance, might call for additional surgery.

The above procedure has been found most satisfactory for both patient and surgeon. The patient is spared the few days of agony—and they are real ones—between the hour the biopsy is taken in the office and the time of the pathologist's report. Again, with our present procedure, the emotional disturbance on awakening and finding her breast removed is well handled by the patient—she had been "briefed" for it. And nothing is comparable in medicine to the joy the patient experiences on awakening and finding her tumor was of minor importance and that she is still in possession of both her breasts. It is a happy feeling for the surgeon as well.

Results

A detailed report of 5-, 10- and 15-year cures is not possible due to loss of contact during the war with a number of the early cases, and the relatively high percentage of cases in this series operated upon within the last half-dozen years. However, there is no reason to assume that the results obtained by the present writer are radically better, or radically worse, than those reported by other surgeons employing similar indications for operability and using a somewhat similar radical operative approach for mastectomy. Suffice it to say there were no immediate operative deaths. In patients free of axillary metastases (Stage 1), the 5-year cure rate reaches 70 to 90 per cent. Once the axilla is involved (Stage 1), the 5-year rate drops to 30 per cent (7). With further extension to the supraclavicular glands and fixation to the pectoral fascia (Stage 3), surgery is no longer indicated—in fact,

(*Continued on page 15*)

in whooping cough

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BEDSIDE PROTHROMBIN TIME DETERMINATION

Utilizing Vacutainer Collection Directly into Thromboplastin

ROBERT D. BARNARD, M.D.
Brooklyn, N. Y.

The antiprothrombinogenic effect of dicumerol, a drug naturally occurring in spoiled sweet clover, has been for some time the basis of anticoagulant therapy in various thrombotic and thromboembolic states. The prevention of formation of fresh thrombi and of accretion to existent thrombi are accepted effects of the drug; its ability to facilitate resolution of preformed thrombi has been suggested (1).

The optimal dosage of dicumerol, which varies among patients, is that which will maintain the prothrombin concentration below an unspecified "thrombogenic" level and above that at which bleeding tendency is supposed to occur. For this purpose, the one stage prothrombin time method, based on the principle elaborated by Quick (2), is the most frequent method of control. Rightly or wrongly, many physicians hestitate to institute or maintain dicumerol therapy unless reduplicable prothrombin time estimations are available. Since such determinations are not within the technical province of the physician, dicumerol therapy is denied many patients who might benefit from it. This is particularly true of patients who are not in a hospital or who are far removed from clinical laboratories and whereas "bedside" prothrombin determination techniques such as that of Smith et al (3) have been devised for this circumstance, the average physician is reluctant to undertake the responsibility of performing a quantitative estimation of this nature.

This report details a prothrombin estimation technique which was developed to overcome some (but not all) of the present disadvantages of extra-institutional dicumerol therapy. It is based on the fact that thromboplastin accelerates the spontaneous clotting time of whole drawn blood to a degree proportional to the apparent prothrombin concentration of such blood. Temperature control, impractical with other "bedside" procedures, is afforded by the body heat of the drawn blood, itself. Uniformity of rate of admixture of blood with thromboplastin as well as proportionately between the two, is regulated by Vacutainer collection of the blood sample into a tube precharged with thromboplastin.

TECHNIQUE

1. *Preparation of thromboplastin solution.* In the series of tests completed, the rabbit brain suspension of Quick has been utilized. The dried powder is available commercially and for the purpose of the present method may be prepared according to the directions given by the manufacturer (Bacto-Thromboplastin; Difco). However, since it is now believed that the role of calcium in blood coagulation is that of an inherent portion of the thromboplastin molecule (which latter acts as an ion exchange resin to produce filar and agglutinative fibrin from a portion of the fibrinogen, and thrombin from the prothrombin) it is not necessary to remove the calcium from the thromboplastin suspension by pre-treatment with oxalate. Instead, the contents of a vial of dried thromboplastin powder (0.15 grams) is added to 4 cc. of 0.85 per cent NaCl solution in a clean test tube and the suspension is maintained at 45° C for 15 minutes. It may then be alternately frozen and thawed and centrifuged slowly to remove gross particles. The slightly turbid supernatent, of which three and one-half cc. are recoverable, is sufficient to make up seven prothrombin testing tubes. Larger multiples of the portions given may be made up if more tests are required.

2. *Preparation of Prothrombin Time Vacutainers.* With a 26 gauge needle on a 5 cc. syringe containing the above thromboplastin solution, ½ cc. is introduced into each 5 cc. Vacutainer to be used. A larger needle is unsuitable since the suspension is introduced through the rubber diaphragm, allowing the vacuum in the tube to aspirate the requisite amount; too large a needle opening in the diaphragm may cause the tube to subsequently lose some of the remaining vacuum. Tubes containing the thromboplastin solution may be kept in the freezing compartment of a refrigerator for a month before use; the thromboplastin is stable for about a day at room temperature. The tube to be used is withdrawn from the freezing compartment not earlier than the day of use.

3. *Conduct of the Prothrombin Time Test.* The tube with thawed contents is held in the plam of the hand for about a minute to bring it to the vicinity of body tempertaure. A Vacutainer needle holder fitted with a 20 gauge, 1-inch needle is fitted over the diaphragmed end and venipuncture and aspiration effected by the usual Vacutainer technique (4). When the tube has drawn its fill (about two seconds after puncture) timing is begun on the test. The tube is quickly removed from the holder and inverted at intervals of about one second until the contents solidify. The last is the end-point of timing. It is an extremely sharp end-point with samples of high prothrombin content; with samples of very low prothrombin content there may be several seconds of interval berween visible coagulation and complete solidification. In the latter instance, either phase of coagulation may be taken as the end-point provided one uses either phase consistently throughout the series of determinations on any patient.

TABLE I

C. P., female 22, old rheumatic heart disease with auricular fibrillation; cerebral embolism on 20 Feb. Maximum digitalization throughout.

Date	Vacutainer Prothrombin Time (second-hand)	Recalcification Prothrombin Time (stop-watch)	Dicumerol Dosage mgms.	Remarks
21 Feb	10 secs.	14 secs.	200 mgm.	decompensated
22 Feb	15	17.2	200	
23 Feb	35	31.8	75	improved; moderate fibrillation
24 Feb	40	30.4	50	slight fibrillation
25 Feb	35	27.8	50	
26 Feb	30	22.6	100	
27 Feb	35	26.4	50	markedly improved
28 Feb	25	24.4	0	
1 Mar	25	20.2	0	
2 Mar	20	16.6	0	
3 Mar	15	15.2		

TABLE II

Correlation of Directly Measured Prothrombin Level with Globin Induced Coagulability.

Vacutainer Prothrombin Time (Stop-watch timed)	Coagulation with Modified Human Globin	Condition
13.2	2 hours	Vitamin K induced hyperprothrombinemia
37.8	none	Obstructive Jaundice
24.4	12 hours	Dicumerol Therapy
14.4	none	Hemophilia
47.2	none	Dicumerol Therapy
17.6	4 hours	"Hyperheparinemia" in Acute Leukemia
28.0	24 hours	Dicumerol Therapy

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In spite of the apparent absence of certain controls purportedly present in more refined laboratory methods of prothrombin concentration determination, this method has proved efficaceous in following and controlling the course of dicumerol therapy. An opportunity of correlating the prothrombin times obtained by this method and the author's modification of the Quick method (5) is facilitated by the ability to collect multiple samples on single venipuncture with the Vacutainer technique. A patient from whom such correlative figures was obtained could have been as amply controlled by one technique as the other (Table I). In this instance it was feasible to designate the daily dose of dicumerol before leaving the bedside of the patient who was at home.

The described method is felt to obviate the most serious defalcation of the usual recalcification prothrombin time methods. Blood begins to clot the moment it comes in contact with foreign material. By holding blood in a syringe for one minute before admixing with citrate or oxalate, the author has observed "prothrombin times" of as small an interval as five seconds by the usual technique even on samples of blood that have contained dangerously low prothrombin complements. With the present technique, timing is started with the initiation of coagulation and an abnormally shortened time would probably indicate a hypercoagulability state.

An end-point of complete solidification is recommended even though the latter be markedly delayed in prothrombopenic bloods.

(*Continued on page 15*)

BOOK REVIEWS

Food Chemistry

The Chemical Composition of Food. Nutrition chemists, dietitians and physicians will find this volume very helpful. Every experiment, calculation, and figure has been carefully checked, and the information is related in a simple and practical manner. By R. A. McCance and E. M. Widdowson: Chemical Publishing Co. 148 pages of tables and explanation.

The nutritional and dietetic treatment of disease, as well as research into problems of human nutrition, demands an exact knowledge of the chemical composition of food. The pioneering investigations into food chemistry were made in Germany and the United States. The research on vitamins which began to make rapid progress soon after that war (1914–1918), and in which England played a leading part, stimulated a demand for a wider knowledge about human foods. Accordingly, Dr. McCance approached the Council in 1925 for support in order that he might determine the amount of carbohydrate in foods used in the treatment of diabetes. A system of analysis has been evolved by which they have determined all the vitamins which have formed the subjects of extensive research by other workers and by different mthods. Some idea of the amount of detailed analytical work involved in these chemical studies may be gathered from the statement that as many as twenty different constituents may require to be determined in a single foodstuff.

By 1939, when the first edition of these tables was published, this systematised analytical procedure had been applied by Dr. McCance and his colleagues to most of the foods commonly eaten in Great Britain. The method of approach had been somewhat different from that of previous workers in the same field; for the foods had been analysed, not only in the raw state, but also as prepared for the table, and studies had been made of the losses introduced by cooking. The investigators had also examined the question whether all the constituents of a food are really available for the body's use; whether they are decomposed in the alimentary canal, or fail to be absorbed. The greater part of this work was published by the Council in Reports in this Series (Nos. 135, 187 and 213).

The recent war and its attendant nutritional problems created a demand for analytical data, old and new, and experience and criticism led the authors to reconsider a few of the figures previously published by them, so that minor alterations and additions were made when the tables were reprinted in 1942. The authors have made no change in the form of the main tables or text, but figures relating to a number of new foods and food materials have been added. These partly fill in gaps in the tables, partly replace older figures, but mostly supply information about the composition of foods which are characteristic of war-time and post-war circumstances.

Medical History

Discoverers for Medicine. Many of the most important discoveries in medicine have been made by people who were not doctors, and this is a fascinating account of the life and work of some of the most extraordinary among them. By William H. Woglom, M.D.: Yale University Press 1949. 209 pages plus bibliography and index. Price $3.75.

The observation has often been made that non-medical persons have contributed much to medical progress, but no one, so far as we know, has written a book about it until now. Dr. O. W. Holmes remarked upon this fact reminding us of the Jesuit, the friar, the soldier, the postmaster, the dairy maid, and the old market woman who captured the "itch insect."

Dr. Woglom, now retired, was deeply engaged in research at Columbia University for more than 30 years, and was editor of the journal, *Cancer Research.* He has steeped his intellect with medical history, and has brought forth an excellent "broth" for which he gives full credit to all predecessors who have assembled and set down the facts upon which any history must be based. It is only the *use* of such material which makes any one of these differ from all the rest. The author has an easygoing literary style, trenchant, yet graceful and free. There is no recognizable effort at bookmaking, but the reader's interest is encouraged and maintained from cover to cover. There is also a fine sense of the dramatic as in the description of the last days of Metchnikoff and of Manuel Garcia. The latter lived to be 102! He was, as many know, a teacher of singing who adapted the dental mirror to demonstrate the vocal cords. The names of many other amateur medical scientists appear—Lavoisier and respiration; William Withering and foxglove; Guyot and the eustachian tube; Benjamin Franklin and glasses for correcting visual defects; Roentgen and x-rays; Mendel and heredity; and John Rowe and milk sickness. There is no pretense to name all, since all are not known, and the task would be too great. Enough is given, however, to whet the reader's appetite for more, and that is the essence of good reporting in whatever field one browses.

Index of Treatment

An Index of Treatment. By Various Writers. Edited by Sir Robert Hutchison, Bt., M.D., LL.D., F.R.C.P., Consulting Physician to the London Hospital, and Hospital for Sick Children, Great Ormond Street. Assisted by Reginald Hilton, M.A., M.D., F.R.C.P., Physician to St. Thomas's Hospital, Consulting Physician, Epsom Hospital, Consulting Physician and Cardiologist, Wembley Hospital: Thirteenth Edition, Revised. 972 pages. 100 illustrations. Indexed: Baltimore, The Williams and Wilkins Co., 1948.

This encyclopedic volume has had a great following since the first edition appeared in 1907. It is essentially British in every detail, and is exceedingly comprehensive. However, we in this country, in spite of our "mass production" ideas, might think that too much is crammed together when medicine and surgery are included in one volume intended to cover all diseases! It is surprising, nevertheless, how complete the text is. Some 75 authors have written the various chapters, and there is, of necessity, some overlapping, but not too any disturbing degree. The book was planned for republication, after revision, in 1944, "but war-time difficulties of different kinds hindered its completion." An American wonders how our British cousins always seem to put through whatever they have in mind to do. They are the best examples of the humorous statement that "the impossible takes a little longer." They always "muddle through—" their own expression of accomplishment. There is much of value in this text, especially when used as a reference in "looking up" some medical or surgical detail. If there are "oversights or omissions," this reviewer has not found them.

Aspects of Thyroid

The Thyroid and its Diseases. By J. H. Means, M.D., Jackson Professor of Clinical Medicine, Harvard University, and Chief of Medical Services, Massachusetts General Hospital: Second Edition. Pages vii to 571: The J. B. Lippincott Company, 1948. Price $12.00

In the 11 years intervening between the first and second editions of this great work, the science of "thyroidology" has gone forward with enormous strides, chiefly because this thyroid gland is so accessible for observation and study in the laboratories of physicist, microbiologist, physiologist and chemist. Antithyroid drugs such as potassium sulfocyanate and the thiourea derivatives have helped much in these investigations. The thyroid is a gland placed superficially in front of the trachea, shaped like a butterfly, its lateral lobes like wings spreading above the great vessels of the neck and the recurrent laryngeal nerves. Its apparent sole function is to secrete a hormone, and for this product it is both a factory and a warehouse. New tools for studying it come from radioactive iodine, tissue culture technics, antithyroid drugs, and enzyme chemistry. Physics has taught us something about radioactive isotopes, and the laboratories at Mayo Clinic, Parke Davis, the Thorndike Memorial Laboratory at Boston City Hospital, and ophthalmologic institutions have all contributed a share of valuable information. The thyroid is almost synonymous with presence or absence of iodine. The so-called "goiter belts" provide food from the soil which is poor in iodine, while seaside areas, where iodine is plentiful in flora and fauna, know little of malfunction of the thyroid, which is under control of the pituitary. So much has been said and written concerning hyperthyroid that *hypo*thyroid conditions are in some danger of being slighted. For example, it is well to remember that a hypothyroid condition often is associated with decreased or absent sexual activity. Symptoms are chilliness, decreased sweating, dryness and coldness of the skin and gain in weight . . . The thyroid hormone controls rate of growth, differentiation of tissues, energy exchange, metabolism of fats, proteins, carbohydrates, and the uses of salt and water. It is actively associated with all other endocrines . . . This book is filled with information which every doctor should have in mind, no matter what his specialty. It is a *must.*

Adolescence

A Doctor Talks to Teen-Agers. This book is personally directed to young folks. Its main purpose is to be some degree helpful to the young men and young women who may be passing through difficulties in these trying times. By William S. Sadler, M.D., F.A.P.A. Consulting Psychiatrist, Columbus Hospital: The C. V. Mosby Co., St. Louis, 1948. 362 pages and index. Price $4.00.

Parents find it increasingly difficult to talk to their own children, and more and more the psychiatrist at school or church or club is assuming the function of advisor and guide. This may or may not be a good idea. Only time will tell and then it will be too late for those now undergoing the growing-up period. But if a book had to be written, no better man could be found than Dr. Sadler. He writes as a physician and as a parent. He utilizes notes left by his recently departed wife (also a physician) and had his own son read the manuscript.

It remains only for the teen agers to discover the book—to have the bobby soxers storm the hotel where Dr. Sadler stays—to have radio and television offer him fabulous sums to give his talks in person over these mechanical agencies.

For after all, should not the cause of some of the problems of the teen ager be fought by the same means? The trouble with the kids is just that they were born in this age—the time is responsible—not the kids. But all this will change—one can't go along in an age of the atomic bomb for peace or war without making some indent on youth.

No two persons will agree with anything Dr. Sadler has written. It is not necessary there be agreement. Only acknowledgement of a task each one has promised to do but never did it.

You may offer this book without reservation to all parents.

Brain and Intelligence

Brain and Intelligence. Results reached by WARD B. HALSTEAD as a result of 12 years experience: The University of Chicago Press, Publishers, 1947. 149 pages plus appendices, references and bibliography. Price $6.00.

Dr. Halstead, as a result of 12 years' study of brain-injured individuals, comes up with a very interesting book on the relation between brain anatomy, function and intelligence. His results are based on the findings of 250 patients with various types of brain lesions as well as normal individuals. Dr. Halstead subjected these individuals to a series of 10 tests to gauge and measure their intelligence. These tests are all well established and universally accepted.

Intelligence, according to Dr. Halstead, is a biological phenomenon. It is based on four factors: 1. conscious integration. 2. abstraction. 3. power and 4. direction. The frontal lobes of the brain are the most essential as far as intelligence is concerned. Dr. Halstead has combined new instruments and quantitative methods with the techniques of factor analysis to isolate the basic factors of higher mental processes. A four-factor theory of intelligence emerges, and the relations of the factors to specialized areas of the brain are established.

This book is of particular interest to neurologists, psychiatrists, psychologists and psychoanalysts. However, the general practitioner will also find this book of extreme interest.

BEDSIDE PROTHROMBIN

(*Continued from page 12*)

It has been shown that natural clot formation proceeds through three distinct pathways and that there are three forms of fibrin incorporated in the natural clot (6). Classic blood coagulation theories deal only with gelatinous fibrin formation which, alone, is probably dependent on the prothrombin-thrombin conversion. But during natural or thromboplastin accelerated coagulation, there forms in addition (1) an agglutinative fibrin and (2) a filar, opaque fibrin. The formation of the latter two may not be contingent on the prothrombin-thrombin conversion. It is not uncommon, in the ordinary recalcification prothrombin estimation techniques to read opacification (filar fibrin formation) or agglomeration of particulate matter (agglutinative fibrin formation) as the end point of a reaction in no way related to their appearance. Thus, in the practical absence of prothrombin, a "safe" prothrombin time may be recorded or dicumerol therapy pushed to the hemorrhagic level (absence of agglutinative fibrin?) on the basis of premature filar fibrin appearance and without real "clotting." By masking all except the resultant of prothrombin conversion, i.e., the solidification contingent on gelatinous fibrin formation, the whole blood technique may prove superior to that conducted with plasma.

By stop-watch timing, the end point with the present method may be read as sharply as with the usual methods. Table II gives some representative values. An interesting comparison is that with oxalated plasmas of the represented blood samples to clot with a specimen of modified human globin. Such globin is antiheparinic or at least anti-antithrombic (7). Prothrombopenic specimens do not clot with globin where oxalated plasma from hemophilic blood shows a similar absence of globin clotting even in face of a normal prothrombin concentration. In the hyperheparinemia of acute leukemia, the prothrombin time is usually prolonged (because of lengthening of the thrombin-fibrinogen interaction phase) but the globin clotting mechanism is present. The finding further stresses the importance of proper evaluation of results by the prothrombin time techniques.

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CANCER OF THE BREAST

(*Continued from page 10*)

it shortens the life span. These patients are best treated by irradiation, radium or roentgen. With skeletal or visceral metastases (Stage 4), little but palliative therapy is available. The importance, in fact the overwhelming importance, of early diagnosis in relationship to curability is thus apparent. And on this note, the following conclusions are drawn.

CONCLUSIONS

1. Every solid tumor of the breast must be considered malignant until proved otherwise.

2. Every discrete tumor of the breast must be biopsied, preferably in a hospital under general anesthesia.

3. Complete radical mastectomy is the best treatment for carcinoma of the breast, with or without axillary mestastases.

4. Radiation therapy is to be used following radical mastectomy, and as the sole method of treatment in Stages 3 and 4: supraclavicular glands, fixation to pectoral fascia, and skeletal or visceral metastases.

5. Simple mastectomy plays no rule in the proper treatment of cancer of the breast, excepting its use in the removal of a fungating mass and for cosmetic reasons in inoperable cases.

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